

NIDIS Weekly Climate, Water and Drought Assessment Summary

Upper Colorado River Basin

October 25, 2011

Precipitation and Snowpack

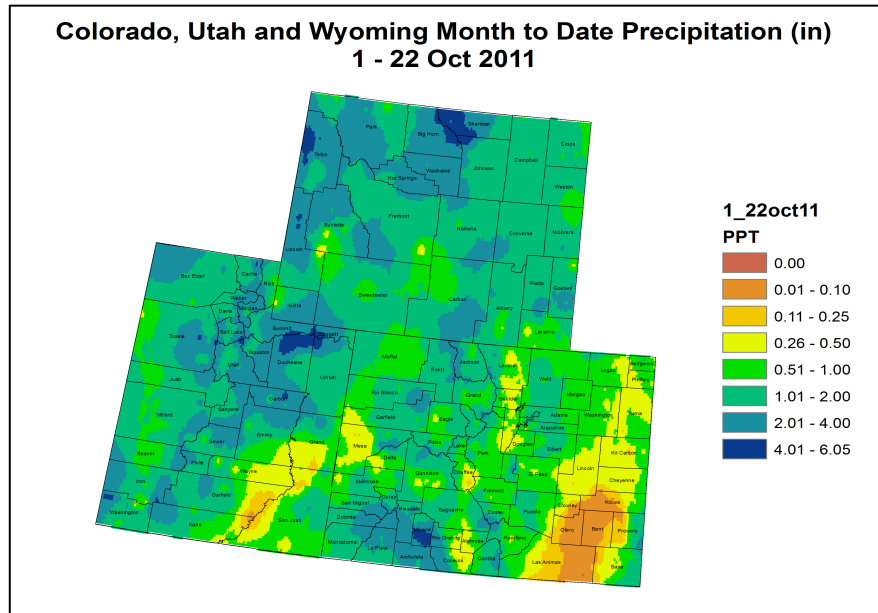


Fig. 1: October month-to-date precipitation in inches.

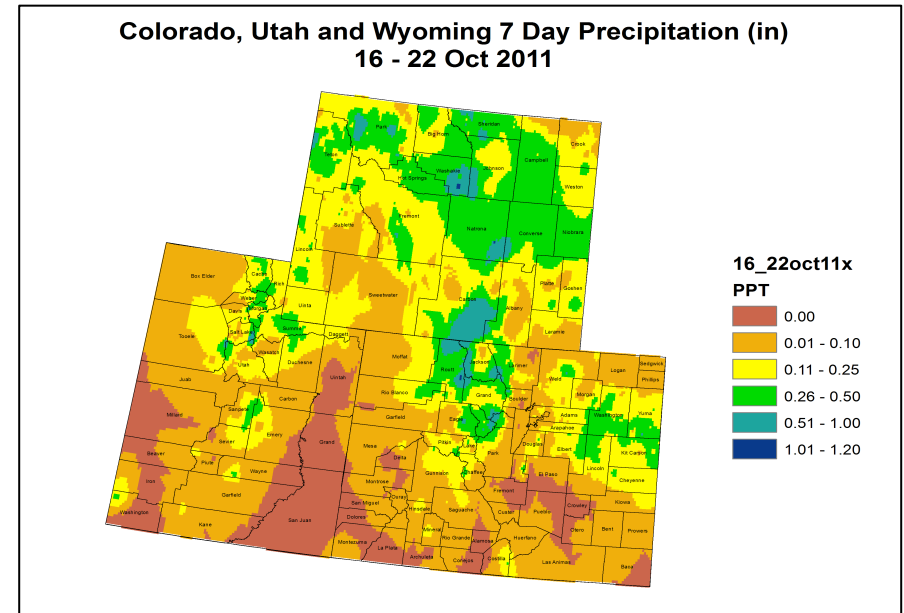


Fig. 2: October 16 – 22 precipitation in inches.

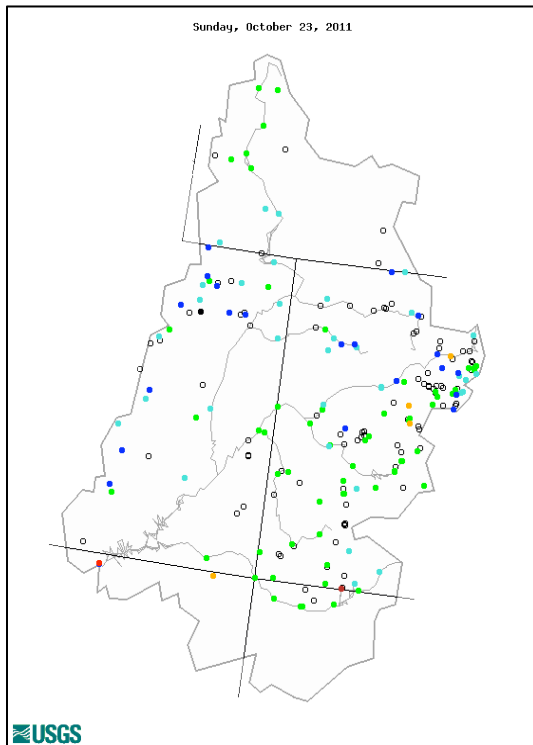
In October, precipitation has favored the northwestern portion of the Upper Colorado River Basin (UCRB), with over 1 inch accumulations in the Upper and Lower Green River basins and as much as 4 inches in northeast Utah (Fig. 1). The San Juan mountains in southern Colorado have also received generous moisture, with many areas seeing over 2 inches for the month. The Colorado River valley just above Lake Powell has been drier, receiving less than half an inch. The higher elevations in the UCRB have already begun to accumulate winter snowpack. East of the basin, much of eastern CO has been relatively drier, receiving less than half an inch, while some spots along the Front Range saw between .5 and 1 inch for the month.

Last week, the heaviest precipitation fell in the higher elevations of northern CO and southern Wyoming, with accumulations totalling between a quarter inch to an inch (Fig. 2). Many of the northeastern counties in CO experiencing short-term dryness also received over a quarter inch last week. Southeast CO, the San Luis Valley and the southern part of the UCRB were drier, seeing less than a tenth of an inch for the week.

Streamflow and Water Supply

As of October 23rd, 95% of the USGS streamgages in the UCRB recorded normal (25th – 75th percentile) or above normal 7-day average streamflows (Fig. 3), with 6 gages recording below normal flows. This is the first time since June that a gage has recorded a low flow. Key gages on the Colorado River near the CO-UT state line, the Green River at Green River, UT, and the San Juan River near Bluff, UT show varied flows at the 59th, 85th, and 26th percentiles, respectively (Fig. 4). This is the first time since early summer that the CO River gage has been below the 75th percentile. Also, the San Juan River gage is very close to dropping below normal again.

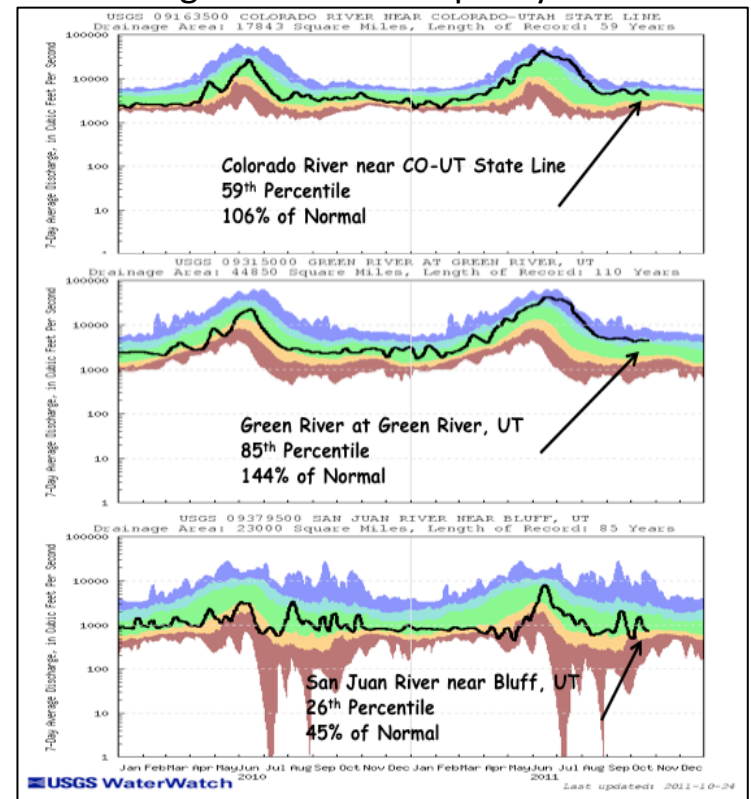
All of the major reservoirs in the UCRB are near or above their October averages. Blue Mesa, Granby and Green Mountain have seen large decreases for October, while Navajo and Flaming Gorge levels have stayed fairly consistent for the month. Lake Powell's volume is currently 89% of average and 71% of capacity compared to 63% of capacity last year at this time.



Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

Fig. 3: 7-day average discharge compared to historical discharge for October 23rd.

Fig. 4: USGS 7-day average discharge over time at the CO-UT stateline (top), Green River, UT (middle) and Bluff, UT (bottom).



Water Demand

Most of the UCRB experienced warmer than average temperatures last week with near to slightly cooler than average temperatures in eastern CO. With the cooler fall conditions and continuous widespread precipitation throughout the drought stricken areas of southeast CO, water demands have eased. The VIC model shows poor soil moisture conditions where long term dryness has prevailed for much of the year over southeast CO (Fig. 5). Most of the UCRB shows near average soil moisture with the Wasatch range in UT and the mountains near the Colorado Headwaters showing very wet soils, and parts of eastern UT showing drying soils. Near normal soil conditions are showing up in the southern portion of the UCRB. Satellite imagery of vegetation conditions show dry vegetation in the Four Corners region, the San Luis Valley, and southeast CO. Vegetation conditions are moist for most of the northern part of the UCRB and slightly drier than average in parts of northeast CO.

Precipitation Forecast

A potent fall storm is poised to impact the UCRB beginning on Tuesday and lasting through Wednesday night (Fig. 6). This system will drive a strong cold front southward across the basin on Wednesday, bringing moderate snowfall to much of the region. The heaviest snowfall will be concentrated in the eastern portions of the basin along the Continental Divide in CO, with the mountains of UT and WY only receiving a brief period of snow following frontal passage. By Thursday morning expect liquid accumulation totals of 1.00" to be widespread across most of the CO mountains with locally higher amounts approaching 1.25" of liquid along the Continental Divide and the San Juan mountains. This system is also expected to bring a significant upslope snowfall event to areas east of the mountains. The upper level trough associated with this storm will move east by Thursday with warming temperatures through the rest of the week. A progressive weather pattern is expected to develop this weekend as several disturbances move across northern portions of the UCRB. While the exact track and strength of these disturbances remains uncertain, light snow showers will be possible in the northern mountains on Saturday and again early next week.

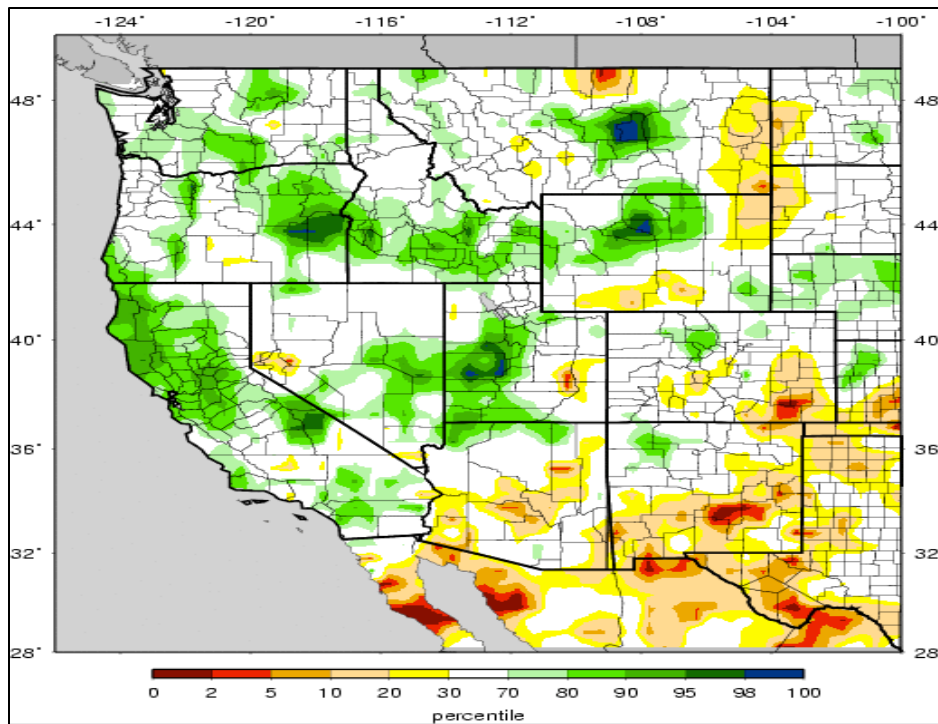


Fig. 5: VIC soil moisture percentiles as of October 23rd.

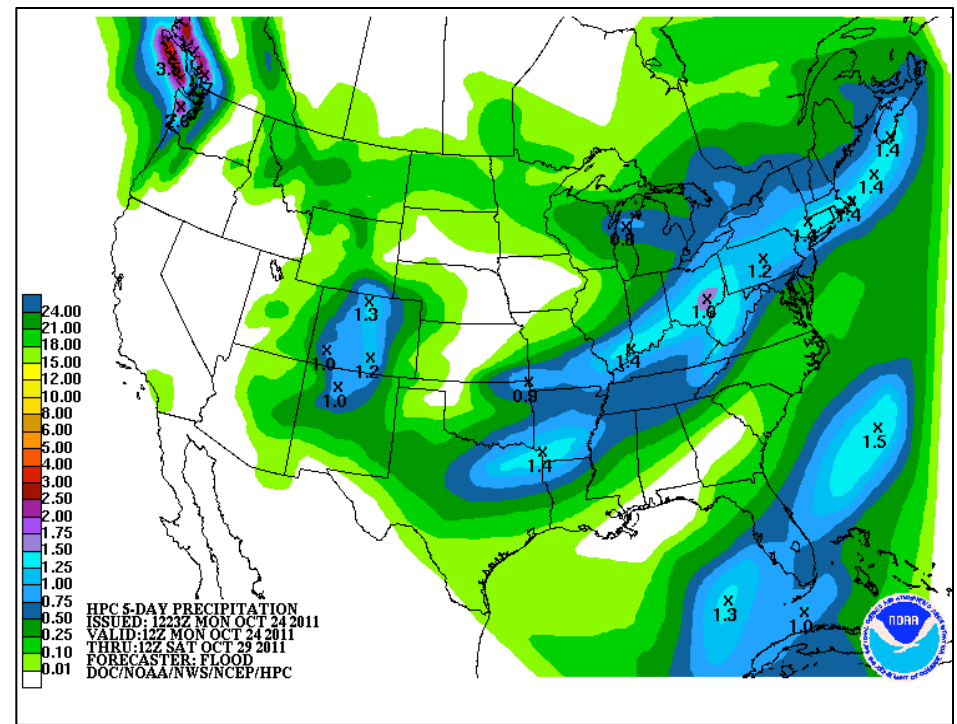
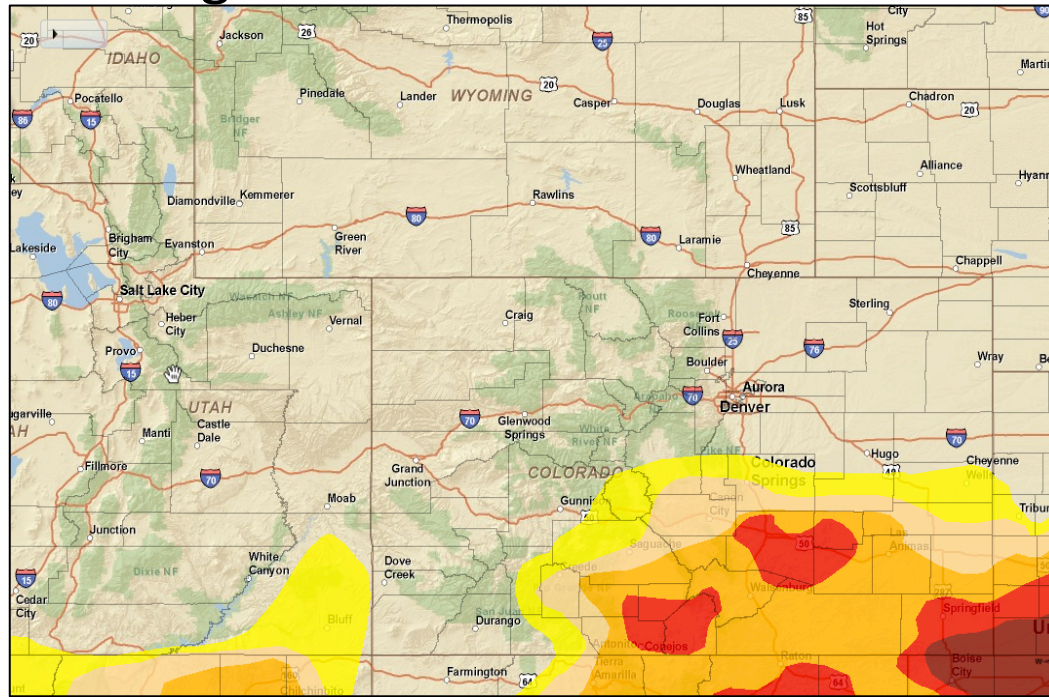


Fig. 6: Hydrologic Prediction Center's 5-day quantitative precipitation forecast effective 12Z October 24th.

Drought and Water Discussion



Drought – Exceptional	0 to 2 (D4)
Drought – Extreme	2 to 5 (D3)
Drought – Severe	5 to 10 (D2)
Drought – Moderate	10 to 20 (D1)
Abnormally Dry	20 to 30 (D0)

Drought categories and their associated percentiles

Fig. 7: October 18th release of U.S. Drought Monitor for the UCRB

Status quo is recommended for the UCRB in the most current depiction of the U.S. Drought Monitor (USDM) map (Fig. 7). Continued dryness in southeast UT (with precipitation deficits, lower streamflows, and drier soils) still warrants the D0 that is currently drawn there

Status quo is also recommended for the rest of Colorado at this time. Short-term dryness has become a concern in Washington, Yuma, Lincoln, and Kit Carson counties. However, these areas did benefit from precipitation early last week, so no changes are suggested, though this area will be closely monitored in the near future for possible degradations.